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# NOTES

ON THE

## CLIMATE OF ALGIERS.

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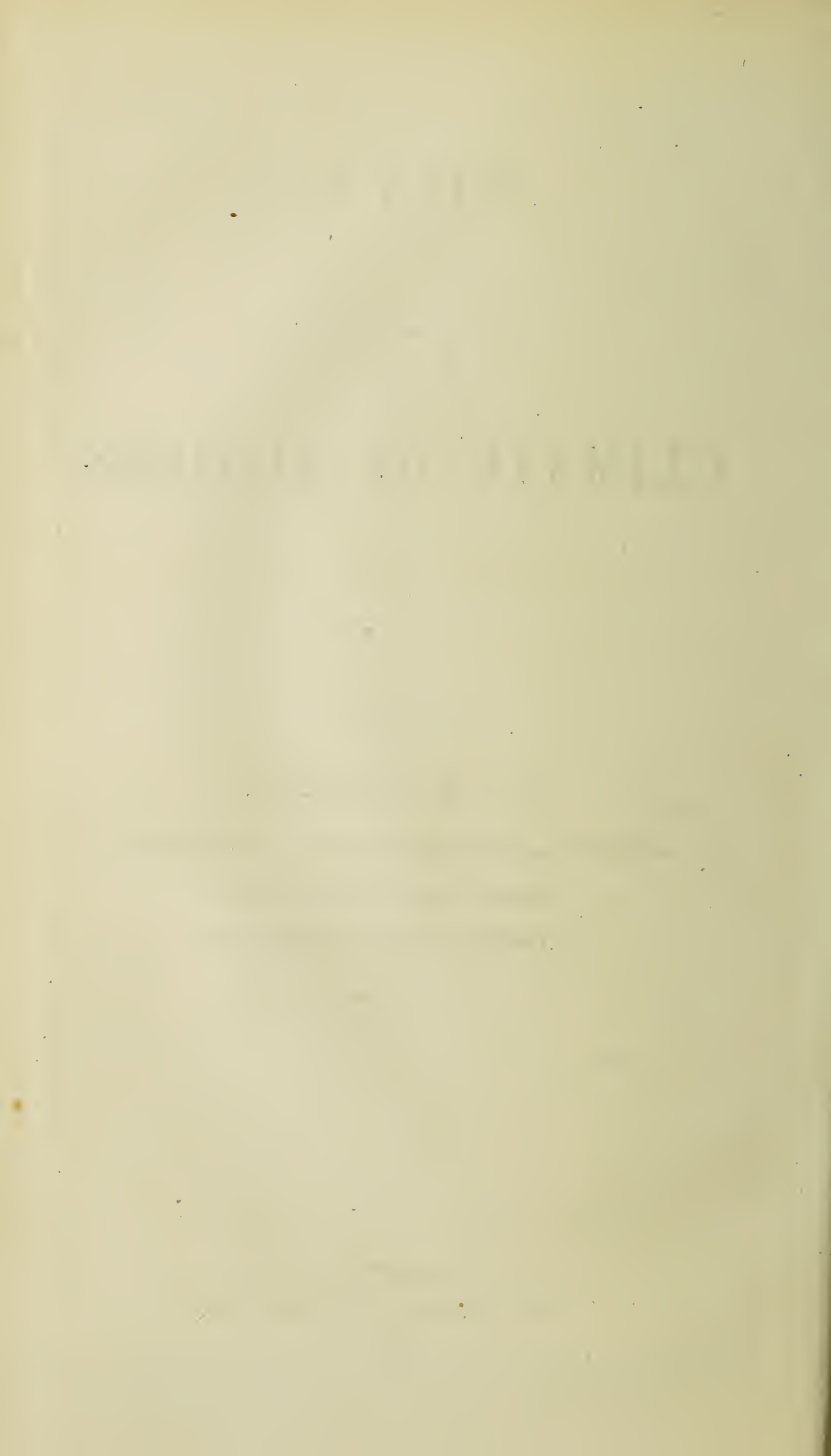
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Introduc-  
tion.

BEING frequently asked whether the climate of Algiers is superior to that of Menton, Pau, Cannes, and other places, I answer that I believe it to be so, but that from the paucity of reliable observations from these places, it is impossible to say definitely in what respects. I have therefore compiled these notes, in order to place the chief features of the climate of Algiers, at a glance before the eyes, hoping that before many years, more reliable information may be forthcoming respecting other winter resorts. I claim no credit to myself, for it is to the life labours of M. BULARD, the Director of the National Observatory, that I am indebted for the following statistics. I may here say, that M. BULARD, after eleven years of work

in England, and four in Paris, has, under circumstances of the greatest difficulty, been working in Algiers for the past twelve years; and something like the extent of his labours may be imagined, when I say that he and his assistants make over 1,000 different observations daily. These pages may therefore be thoroughly relied on, being simply copied and translated from his observations.

Previous  
descrip-  
tions.

Many persons, at different times, have attempted to describe the climate of Algiers, yet few, one may say none, have succeeded. The cause is, that a climate cannot be properly described until many and reliable meteorological observations have been made, during a course of years; and although, since 1838, numerous observations have been made, by English and other physicians, they have all been under unfavourable conditions, and the chief points, namely, the exact determination of the *degree of relative humidity*, and the *extreme ranges of temperature*, have been neglected. Further, it is only since 1859 that any Observatory has been established, and this is the first time any statistics have been printed, further than mere official extracts.

Observa-  
tory.

The present observatory is 217 metres, = 712 feet, above the sea level; there are many other stations in various environs at different altitudes, but in these notes, unless specified to the contrary, all statistics are calculated on observations made at that place.



Situation  
of the City.

Many books have been written on Algiers, fully describing the place, people, and life : suffice it therefore to say, that the city is built on the shore of a large bay, at the foot of a range of hills, the highest of which is over 1200 feet, and with the surrounding country, offers to the view a panorama of such beauty as to be scarcely surpassed by any other in the entire

Environs.

world. On either side, and on the slopes of the hills, at altitudes varying from 20 to 1000 feet, are numerous villas, unfortunately built for summer rather than winter residences, but still comfortable enough, which are let to winter visitors. Consequently, the invalid has a choice of almost any situation.

Divisions  
of climate  
of Algeria.

The climate of Algeria can be divided into three heads,—1st, that of the sea coast; 2nd, that of the table lands in the interior; and 3rd, that of the Algerian desert. The city and its environs being the part frequented by invalids, these observations will be confined to the first of these heads. There exist but

Seasons.

two seasons, the wet, or cool, or winter season; and the dry, or hot or summer; spring and autumn pass almost unperceived. The dry season commences in May or June, and ends in September or October, The wet season commences in September or October, and ends in May or June.

Hours of  
maximum  
tempera-  
ture.

The maximum temperature in summer is usually marked about 10.30 or 11 a.m., for as soon as the breeze, which blows nearly regularly every day towards

noon from the sea, springs up, the temperature ceases to rise. In winter, this breeze only exists on rare occasions, and the maximum is generally about 1 p.m.

Sudden fall  
of tem-  
perature.

Towards 3 or 4 p.m., the temperature falls rather suddenly, especially when the sky is clear, and towards 4 or 5 a further fall takes place, when the sun descends still more rapidly towards the horizon.

Its cause.

This takes place in all similar climates, the cause being, that the inclination of the sun's rays, which inclination is almost stationary from 10 a.m. to 2 p.m., increases rapidly from 3 p.m. to the time of the actual setting of the sun.

Altitude of  
Sun.

It is an interesting fact that at Algiers, the latitude of which is  $36^{\circ} 42'$ , the sun attains on the 21st June an altitude of  $76^{\circ} 42'$ , and on the 21st December  $29^{\circ} 42'$ ; at London it only attains  $62^{\circ} 2'$  and  $15^{\circ} 2'$  respectively; at Edinburgh  $57^{\circ} 33'$  and  $10^{\circ} 33'$ ; and at Paris  $64^{\circ} 40'$  and  $17^{\circ} 50'$ . The altitude of the sun in winter at mid-day is therefore nearly double at Algiers that of London, and triple that of Edinburgh.

Decrease of  
tempera-  
ture in pro-  
portion to  
elevation.

It is a thing well known by all, that temperature falls in proportion as one rises above the sea level; but it also varies with the latitude, and especially with the topographical configuration. Thus amongst high mountains this decrease of temperature is greater, in proportion to height, than in places surrounded by plains or small hills.

Variation  
of relative  
humidity.

The relative humidity varies in different proportions according to the intensity of the heat, and the force and direction of the wind. During the wet season, the relative humidity scarcely ever descends lower than 40, whilst during the dry season 16 has been noticed.

Difference  
of tempe-  
rature  
between  
City and  
Observa-  
tory.

It must therefore be kept in mind that the temperature at the sea level, that is of the city of Algiers, will be *cæteris paribus*, several degrees (average 3.8) higher than at the Observatory, at an elevation of over 700 feet, as will that of the suburb of Mustapha, the favourite residence of English, the altitude of which is from 100 to 400 feet.

*The following Table gives the average duration, in hours, of each wind during the winter months. The mean temperature and humidity of, and the average quantity of rain falling during each.*

Prevalent  
winds.

October to May.	Direction of Wind . . . .	N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
	Duration of each in hours	960	840	192	144	744	1416	1128	432
	Mean temperature, de- grees Fahrenheit ..	50.0	55.4	56.4	62.6	73.4	64.0	62.6	53.6
	Mean humidity . . . . .	72	79	65	59	50	77	89	74
	Average quantity of rain, in inches, falling during each wind during the whole year	6.1	4.1	0.4	0.8	1.6	3.3	8.2	12.3

Pressure of  
atmosphere

It is impossible to give any lengthy or important information on the pressure of the atmosphere, for,



although more than one hundred thousand observations on this, have been made, time has been wanting to reduce them to any concise form, especially as three corrections are required to each individual observation. All that can be said concerning the barometric oscillations is, that when there is no atmospheric perturbation, they are tolerably regular. There exist usually two maxima and two minima per day of twenty-four hours, the former at about 10.30 a.m. and 10 p.m., and the latter at about 3 a.m. and 4 or 5 p.m.



*The following Table gives the rain-fall, in inches, of eleven years.*

Rain-fall of 11 years.	1862-63	1863-64	1864-65	1865-66	1866-67	1867-68	1868-69	1869-70	1870-71	1871-72	1872-73	Average
October .....	1.1	0.9	5.0	3.5	9.8	2.3	5.1	1.7	0.4	4.6	2.1	3.3
November ....	11.9	5.6	7.4	3.1	2.1	2.9	5.1	7.3	9.6	10.3	2.2	6.3
December ....	5.0	7.9	11.3	10.9	a few drops only	6.4	4.0	8.6	8.0	6.9	5.1	6.7
January .....	3.6	5.1	7.5	3.6	6.0	6.0	8.4	3.6	9.8	3.1	0.4	5.0
February.....	7.0	5.6	2.9	0.8	3.9	2.5	4.4	4.5	0.5	1.8	7.0	3.7
March .....	5.8	2.9	8.3	3.5	0.5	3.6	8.5	8.5	2.5	7.2	1.1	4.8
April .....	2.5	3.4	6.3	3.0	0.1	4.7	4.5	1.7	drops	1.6	0.4	2.5
May.....	2.3	0.3	drops	3.6	1.2	2.0	2.2	2.5	1.4	1.6	0.4	1.6
June .....	0.1	0.3	3.2	1.2	drops	3.0	0.2	0.7	0.6	1.6	0.4	1.0
July.....	none	none	drops	drops	none	0.3	drops	0.1	none	drops	none	drops
August.....	0.3	none	none	none	none	none	drops	1.5	0.2	none	none	0.2
September ....	1.5	2.0	1.1	drops	0.7	7.6	1.2	none	0.3	1.4	3.4	1.7
Total of Year ..	41.1	32.0	53.0	33.2	24.3	41.3	43.6	40.7	33.3	40.1	22.5	36.8
In Hours.....	308	328	382	256	186	407	352	365	290	334	213	311

Yearly  
rain-fall.

Thus the average rain-fall is 36.8 inches per year. The average number of hours during the year in which rain falls is 311; and the average amount of rain falling in each of these 311 hours, is 0.118 inches.

Monthly  
rain-fall.

The average rain-fall of each month is—

	Inches.		Inches.		Inches.		
October....	3.3	January....	5.0	April.....	2.5	July.....	drops.
							Inches.
November..	6.3	February...	3.7	May .....	1.6	August ....	0.2
December..	6.7	March.....	4.8	June .....	1.0	September..	1.7

Evapora-  
tion.

The evaporation, calculated from observations made at sea level, averages 48.8 inches yearly, distributed over the months as follows :—

	Inches.		Inches.		Inches.		Inches.
October....	3.7	January ....	2.0	April ....	3.8	July .....	7.7
November..	2.1	February..	2.0	May .....	5.7	August ....	7.1
December..	1.7	March....	3.1	June .....	4.7	September..	5.2

*The following Table gives the mean temperature of each month during the years 1864 to 1872.*

DEGREES FAHRENHEIT.

Mean  
tempera-  
ture.

	1864.	1865.	1866.	1867.	1868.	1869.	1870.	1871.	1872.	Average.
January .....	50.7	54.6	53.5	56.7	51.6	52.8	—	48.5	52.5	52.6
February .....	52.7	51.8	58.5	56.8	53.0	57.4	—	54.9	55.1	55.0
March .....	58.3	52.2	56.2	60.8	55.0	51.0	—	56.8	57.5	56.0
April .....	60.9	61.8	62.0	63.0	59.5	58.9	—	64.4	58.8	61.2
May .....	69.5	67.8	65.8	69.6	65.9	66.5	—	67.6	63.6	67.0
June .....	72.8	72.2	73.2	72.0	71.8	68.1	—	71.2	—	71.6
July .....	80.0	77.9	79.8	68.6	77.8	75.5	—	77.7	—	76.7
August .....	78.3	83.1	79.1	76.8	77.9	—	—	73.9	—	78.2
September .....	73.4	75.6	76.7	74.3	73.3	—	74.7	—	—	74.7
October .....	67.8	68.6	66.5	65.8	64.0	—	68.7	—	—	66.9
November .....	59.1	61.2	62.4	58.7	57.2	—	67.6	—	—	61.0
December .....	52.3	52.5	60.4	52.1	59.0	—	53.4	—	—	54.9

*The mean of observations made on the maxima and minima, extending over a like period of years, gives*

Mean  
range of  
each month

	Mean of Maxima.	Mean of Minima.	Mean Range.
January ....	58.6	46.5	12.1
February ....	60.4	46.7	13.7
March .....	65.7	48.7	17.0
April .....	68.3	53.0	15.3
May .....	74.2	57.0	17.2
June .....	80.4	63.1	17.3
July .....	85.6	68.1	17.5
August .....	85.8	69.6	16.2
September ....	80.9	66.0	14.9
October .....	73.9	60.6	13.3
November ....	65.0	53.7	11.3
December ....	58.9	48.3	10.6

Extreme  
range of  
tempera-  
ture.

Extreme ranges of temperature are rare, except in cases of "sirocco" winds, which, although rare in winter, and at that season not severe, often blow in summer at a temperature of 100°, causing a sudden and excessive range. The above table gives the mean range of each month.

Low tem-  
perature.

The temperature never falls to freezing point, the lowest temperature recorded during the last ten years ; being 36.5 at 700 feet above the sea. Snow fell at 200 feet high on the 13th February, 1872, and a few flakes even fell in the city, but the temperature at sea level did not fall below 38.9 degrees. Previously, none had fallen for ten years.



The following Table gives the relative humidity of nine years, complete saturation being represented by 100.

Humidity.

	1864	1865	1866	1867	1868	1869	1870	1871	1872	Average.
January..	74	63	69	65	67	73	—	69	72	69.00
February .	78	71	63	67	75	52	—	68	68	67.75
March ..	70	54	62	67	68	65	—	69	69	65.05
April ....	73	71	70	67	61	60	—	56	68	65.75
May ....	61	67	62	58	73	63	—	68	68	65.00
June ....	64	67	59	58	69	72	—	54	—	63.04
July ....	64	62	55	77	63	69	—	65	—	64.08
August ..	70	51	62	71	64	—	—	79	—	66.02
September	68	66	60	70	63	—	70	—	—	66.02
October ..	61	61	73	66	54	—	65	—	—	63.04
November	70	55	69	65	67	—	33	—	—	59.08
December	56	75	68	66	63	—	65	—	—	65.05

The paucity of reliable observations, at other winter stations, renders it impossible to compare their climate accurately with that of Algiers. The following tables however, although they cannot be taken as an average, are interesting.



1866, 1867, and 1868.

	PORT SAID.		ISMAILIA.		SUEZ.		ALGIERS.	
	Temperature. Degrees Far.	Humidity.	Temperature. Degrees Far.	Humidity.	Temperature. Degrees Far.	Humidity.	Temperature. Degrees Far.	Humidity.
January .....	57.3	74	55.2	76	56.3	69	53.9	66.0
February.....	56.1	72	54.5	74	55.5	64	56.1	68.0
March .....	62.6	70	63.5	70	64.5	60	57.2	66.5
April .....	64.7	69	66.3	63	67.6	57	61.5	68.0
May.....	72.1	71	73.5	61	78.0	49	67.1	65.0
June .....	77.0	72	79.5	58	79.8	52	72.3	66.2
July .....	81.8	72	82.5	59	84.3	49	75.3	65.4
August.....	80.6	72	81.5	63	83.6	54	77.9	68.4
September .....	77.9	70	78.2	69	81.8	59	74.6	66.3
October .....	72.5	70	71.9	71	74.4	59	65.3	67.5
November .....	65.8	71	63.1	73	66.5	69	59.3	66.7
December .....	57.9	74	56.8	77	58.2	72	57.0	61.7
Annual mean .....	68.86	71	68.87	68	70.87	59	64.79	64.6

*Shade temperature observed at the following Cities, at 8 a. m., during a period of great cold, during the month of December, 1871.*

December ..	London.	Paris.	Marseilles.	Cette.	Palma.	Palermo.	Naples.	Rome.	Constantinople.	Florence.	Algiers.
1 .....	37.6	55.9	37.7	41.0	—	—	—	—	56.1	36.5	59.0
2 .....	32.4	26.8	35.8	42.8	—	61.7	57.9	—	59.7	37.4	55.9
3 .....	—	27.5	39.2	35.6	—	55.6	—	—	46.4	37.4	55.2
4 .....	29.7	30.2	—	41.0	51.2	48.5	41.0	—	44.6	37.4	51.6
5 .....	—	25.7	34.2	33.3	41.4	55.2	43.7	—	54.1	—	56.7
6 .....	34.0	32.0	40.8	33.8	41.0	52.1	37.7	—	59.0	34.3	48.6
7 .....	31.9	23.7	32.9	35.6	29.9	48.5	—	32.3	56.3	28.8	38.8
8 .....	19.4	11.3	—	35.6	49.8	49.8	—	29.1	52.3	24.8	43.8
9 .....	27.9	6.3	33.6	33.8	—	49.6	—	28.1	38.4	30.2	48.7
10 .....	34.2	19.6	—	—	—	—	—	25.2	41.7	17.6	42.2
11 .....	30.4	27.9	37.6	35.6	42.3	43.1	—	31.5	41.0	—	46.5
12 .....	37.8	27.5	35.8	33.8	41.2	47.1	—	31.5	—	29.7	42.6
13 .....	37.6	26.8	53.2	33.8	47.8	47.1	—	34.1	—	29.3	44.7
14 .....	—	34.0	33.0	32.0	49.4	47.1	—	—	30.7	46.4	45.8
15 .....	—	39.5	35.4	32.0	47.4	48.2	—	25.9	—	—	45.6

*The past winter, although the wettest and worst season for many years, will yet compare favorably with most places.*

# ANALYSIS OF SEASON 1873-1874.

Resumé  
of Season  
1873-1874.

	Mean Temperature of Month.	Greatest Maximum recorded during Month.	Least Minimum recorded during Month.	Greatest range of Month.	Greatest range of any one day.	Mean Daily range.	Mean Humidity.	Rain-fall in inches.
October .....	64.2	95.0	48.2	46.8	36.0	12.9	66	12.4
November .....	60.4	77.0	45.6	31.4	28.2	10.5	65	1.8
December .....	53.3	69.5	41.0	28.5	20.1	13.4	69	6.3
January .....	54.1	62.0	44.2	17.8	17.5	11.8	70	6.9
February .....	53.9	64.5	39.0	25.5	18.9	12.1	64	4.4
March .....	56.8	63.9	37.8	26.1	25.2	14.0	65	7.2
April .....	56.9	66.1	43.1	23.9	19.3	13.1	67	5.2
May .....	62.1	76.9	49.1	27.8	24.1	12.7	65	2.1

*Mean temperature and relative humidity of Algiers and Funchal  
(Madeira); Seasons 1871—72.*

	ALGIERS.		FUNCHAL.	
	Temperature. Degrees Far.	Humidity.	Temperature. Degrees Far.	Humidity.
1871 .. November ..	57.0	73	65.4	—
„ .. December ..	49.6	74	—	—
1872 .. January ....	52.3	72	60.0	—
„ .. February ....	55.0	68	58.6	71
„ .. March .....	57.4	69	60.4	—
„ .. April .....	58.6	68	62.0	65
„ .. May .....	63.5	69	62.2	61

F I N I S.